2015 Annual Drinking Water Quality Report
Moore County Public Utilities – Seven Lakes
Water System Number: 03-63-117

We are pleased to present to you this year's Annual Drinking Water Quality Report. This report is a snapshot of last year's water quality. Included are details about your source(s) of water, what it contains, and how it compares to standards set by regulatory agencies. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water and to providing you with this information because informed customers are our best allies. **If you have any questions about this report or concerning your water, please contact Chris Fuller at (910) 947-6315. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled Board of Commissioners meetings. They are held on the first and third Tuesdays of each month at 5:30 p.m. in the Commissioners' Meeting Room, Second Floor- Historic Courthouse, Courthouse Circle, Carthage, North Carolina.**

What EPA Wants You to Know

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Moore County Public Utilities-Seven Lakes is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming; pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses; organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems; and radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

When You Turn on Your Tap, Consider the Source

Our water source is ground water and purchased water. Our 3 wells draw from the Middendorf Aquifer. The NC 211 Highway Booster Station pumps drinking water from the Pinehurst area of the County's water system to Seven Lakes area of the County's water system. The following table lists well and booster station locations.

Water Source	Location
Well 11	Longleaf Dr.
Well 11A	Gateway Dr.
Well 12	NC 73 Hwy.
NC 211 Hwy. Booster Pump Station	NC 211 Hwy.

Source Water Assessment Program (SWAP) Results

The North Carolina Department of Environment and Natural Resources (DENR), Public Water Supply (PWS) Section, Source Water Assessment Program (SWAP) conducted assessments for all drinking water sources across North Carolina. The purpose of the assessments was to determine the susceptibility of each drinking water source (well or surface water intake) to Potential Contaminant Sources (PCSs). The results of the assessment are available in SWAP Assessment Reports that include maps, background information and a relative susceptibility rating of Higher, Moderate or Lower.

The relative susceptibility rating of each source for Moore County Public Utilities-Pinehurst was determined by combining the contaminant rating (number and location of PCSs within the assessment area) and the inherent vulnerability rating (i.e., characteristics or existing conditions of the well or watershed and its delineated assessment area). The assessment findings are summarized in the table below:

Susceptibility of Sources to Potential Contaminant Sources (PCSs)

Source Name	Susceptibility Rating	SWAP Report Date
Well 11	Moderate	August 24, 2015
Well 11A	Moderate	August 24, 2015
Well 12	Moderate	August 24, 2015

The complete SWAP Assessment report for Moore County Public Utilities-Seven Lakes, the Town of Aberdeen, the Town of Southern Pines and the East Moore Water District may be viewed on the Web at: www.ncwater.org/pws/swap. Note that because SWAP results and reports are periodically updated by the PWS Section, the results available on this web site may differ from the results that were available at the time this CCR was prepared. If you are unable to access your SWAP report on the web, you may mail a written request for a printed copy to: Source Water Assessment Program – Report Request, 1634 Mail Service Center, Raleigh, NC 27699-1634, or email requests to swap@ncdenr.gov. Please indicate your system name, number, and provide your name, mailing address and phone number. If you have any questions about the SWAP report please contact the Source Water Assessment staff by phone at 919-707-9098.

It is important to understand that a susceptibility rating of "higher" does not imply poor water quality, only the system's potential to become contaminated by PCSs in the assessment area.

Violations that Your Water System Received for the Report Year

During 2015, or during any compliance period that ended in 2015, MCPU-Seven Lakes received no violations.
During 2015, Harnett County received an "Online Turbidimeter failure Notice Violation" for May 2015. The Notice to the Public is attached to the end of this report. Appropriate paperwork was submitted to the State and Harnett County has returned to compliance.

Water Quality Data Tables of Detected Contaminants

We routinely monitor for over 150 contaminants in your drinking water according to Federal and State laws. The table below lists all the drinking water contaminants that we detected in the last round of sampling for the particular contaminant group. The presence of contaminants does not necessarily indicate that water poses a health risk. **Unless otherwise noted, the data presented in this table is from testing done January 1 through December 31, 2015.** The EPA and the State allow us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted.

Important Drinking Water Definitions:

Action Level (AL) - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Maximum Contaminant Level (MCL) - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG) - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfection Level (MRDL) – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfection Level Goal (MRDLG) – The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Nephelometric Turbidity Unit (NTU) - Nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Not-Applicable (N/A) – Information not applicable/not required for that particular water system or for that particular rule.

Parts per million (ppm) or Milligrams per liter (mg/L) - One part per million corresponds to one minute in two years or a single penny in $10,000.

Parts per billion (ppb) or Micrograms per liter (ug/L) - One part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

Picocuries per liter (pCi/L) - Picocuries per liter is a measure of the radioactivity in water.

Treatment Technique (TT) - A required process intended to reduce the level of a contaminant in drinking water.

Tables of Detected Contaminants

Inorganic Contaminants Tested by Purchase Systems 2015

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low	Range High	MCLG	MCL	Likely Source of Contamination
Town of Aberdeen Fluoride (ppm)	1-5-15 12-1-15	N	1.2	.66-	1.2	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Harnett County Fluoride (ppm)	1-6-15	N	.54	N/A		4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories

Note: At times, particularly during periods of higher water demand, that fluoridated water may be pumped to the Seven Lakes area of the County's water system from the Pinehurst area. Please contact Customer Service at 910-947-6315 to have the water at your home tested for fluoride by our staff.

Nitrate Contaminants – Tested by Moore County- Seven Lakes 2015

Contaminant (units)	MCL Violation Y/N	Your Water	Range Low	Range High	MCLG	MCL	Likely Source of Contamination
Nitrate (as Nitrogen) (ppm)	N	1.00	1.00	1.00	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

Nitrate Contaminants Tested by Moore County- Pinehurst 2015

Contaminant (units)	MCL Violation Y/N	Your Water	Range Low	Range High	MCLG	MCL	Likely Source of Contamination
Nitrate (as Nitrogen) (ppm)	N	2.20	0 .0	4.39	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (as Nitrogen) (ppm)	N	N/A	<0.1	<0.1	1	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

Unregulated Contaminants Tested by Moore County

Contaminant (units)	Sample Date	**Your Water**	Range Low	Range High	MCL
Chlorate	2013	N/A	44 -	1100	N/A
Hexavalent Chromium (Dissolved)	2013	N/A	0.032 -	1.176	N/A
Strontium	2013	N/A	3.5 -	510	N/A
Cobalt	2013	N/A	2.6 -	2.6	N/A
Molybdenum	2013	N/A	1.1 -	1.4	N/A
Vanadium	2013	N/A	.22 -	.99	N/A
1,4 Dioxane	2013	N/A	3.9 -	12.2	N/A
Perfluoroheptanoic acid - PFHpA	2013	N/A	0.012		N/A
Chromium	2013	N/A	0.25 -	0.69	N/A
Chlorodifluoromethane	2013	N/A	82 -	1100	N/A
perfluoro octanesulfonic acid - PFOS	2013	N/A	0.073 - .076		N/A
perfluoro- 1 - hexanesulfonic acid - PFHxS	2013	N/A	0.04 - 0.042		N/A
perluoroheptanoic acid - PFHpA	2013	N/A	0.025		N/A
bromochloromethane	2013	N/A	98		N/A
Perfluoroctanoic - PFOA	2013	N/A	0.023		N/A

Unregulated Contaminants Tested by Harnett County

UCMR Monitoring	Sample Date	Result(ppb)/ Range Low/High	MRL ppb	SMCL
Molybdenium	9-25-14	1.0 ppb	1	N/A
Strontium	3-24-15	47	0.3	N/A
Vanadium	9-26-14	0.02-0.03	0.2	N/A
Chromium, Hexavalent	3-23-15	0.04	0.03	N/A
Chlorate	3-24-15	290	20	N/A
1,4 Dioxane	1-4-15	4.8 ppb	0.07	N/A
Perfluoroheptanoic acid (PFHpA)	9-27-14	0.04 ppb	0.01	N/A
Perfluoroctanioc acid (PFOA)	9-27-14	0.02 ppb	0.02	N/A

Volatile Organic Chemical (VOC) Contaminants Tested by the Town of Aberdeen 2015

Contaminant (units)	Sample Date	MCL Violation Y?N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
1,1-Dichloroethylene (ppb)	4-13-15	N	.0006	.0006	7	7	Discharge from industrial chemical factories
Trichloroethlene (ppb)	7-6-15 4-13-15	N	.0058	.0017-.0058	0	5	Discharge from metal degreasing sites and other factories

Asbestos Tested by the Town of Aberdeen

Contaminant (units)	Sample Date	MCL Violation Y?N	Your Water	Range Low High	MCLG	AL	Likely Source of Contamination
Total Asbestos (MFL)	2-2-11	N	0.019	0.019	7	7	Decay of asbestos cement water mains; erosion of natural deposits

Lead and Copper Contaminants Tested by Moore County 2015

Contaminant (units)	Sample Date	Your Water	# of sites found above the AL	MCLG	AL	Likely Source of Contamination
Copper (ppm) (90^{th} percentile)	6-2015-9-2015	0.084	0	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead(ppb) (90th percentile)	6-2015-9-2015	<0.003	0	0	AL=15	Corrosion of household plumbing systems; erosion of natural deposits

Lead and Copper Contaminants Tested by the Town of Aberdeen

Contaminant (units)	Sample Date	Your Water	# of sites found above the AL	MCLG	AL	Likely Source of Contamination
Copper (ppm) (90^{th} percentile)	7-27-15	.051	1	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead(ppb) (90th percentile)	7-10-12	0.005	0	0	AL=15	Corrosion of household plumbing systems; erosion of natural deposits

Radioactive Contaminants Tested by Moore County

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	MCLG	MCL	Likely Source of Contamination
Alpha emitters (pCi/L)	2012	N	4.1	0	15	Erosion of natural deposits
Beta/photon emitters (pCi/L)	2012	N	2	0	50 *	Decay of natural and man-made deposits
Combined radium (pCi/L)	2012	N	2.45	0	5	Erosion of natural deposits
Uranium (pCi/L)	2012	N	0.4	0	20.1	Erosion of natural deposits

* Note: The MCL for beta/photon emitters is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles

Radioactive Contaminants Tested by Aberdeen (2015)

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	MCLG	MCL	Likely Source of Contamination
Alpha emitters (pCi/L)	7-27-15 1-5-15	N	0.8	0	15	Erosion of natural deposits
Combined radium (pCi/L)	1-5-15 10-5-15	N	.8	0	5	Erosion of natural deposits

* Note: The MCL for beta/photon emitters is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles

Disinfection and Disinfection Byproducts – Tested in 2015 by Moore County

Contaminant (units)	MCL/MRDL Violation Y/N	Your Water RAA (Stage2)	Range Low High	MCLG	MCL	Likely Source of Contamination
TTHM (ppb) [Total Trihalomethanes]	N	0.016	.008-.024	N/A	80	By-product of drinking water chlorination
HAA5 (ppb) [Total Haloacetic Acids]	N	.009	.006-.0085	N/A	60	By-product of drinking water disinfection
Chloramines (ppm)	N	.54	.08-1.20	MRDLG = 4	MRDL = 4	Water additive used to control microbes
Chlorine (ppm)	N	.74	.17-1.23	MRDLG = 4	MRDL = 4	Water additive used to control microbes

The PWS Section requires monitoring for other miscellaneous contaminants, some for which the EPA has set national secondary drinking water standards (SMCLs) because they may cause cosmetic effects or aesthetic effects (such as taste, odor, and/or color) in drinking water. The contaminants with SMCLs normally do not have any health effects and normally do not affect the safety of your water**.**

Other Miscellaneous Water Characteristics Contaminants – Tested by Purchase Systems (range) and Moore County (your water)

Contaminant (units)	Sample Date	Your Water	Range Low/High	SMCL
Manganese (ppm)	2015	0.011	.037 -- .038	0.05
Sodium (ppm)	2015	N/A	22 - 37	N/A
pH	2015	7.2	7.0 - 7.2	6.5 to 8.5

NOTICE TO THE PUBLIC

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Violation Awareness Date: May 22, 2015

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the compliance period specified in the table below, we ['did not monitor or test' or 'did not complete all monitoring or testing'] for the contaminants listed and therefore cannot be sure of the quality of your drinking water during that time.

CONTAMINANT GROUP**	FACILITY ID NO./ SAMPLE POINT ID	COMPLIANCE PERIOD BEGIN DATE	NUMBER OF SAMPLES/ SAMPLING FREQUENCY	WHEN SAMPLES WERE TAKEN (Returned to Compliance)
WATER QUALITY PARAMETERS	NC0343045	MAY 2, 2015	ONLINE SAMPLING EVERY 15 MINUTES – HAD GONE TO EVERY 4 HOUR AS PER REGULATIONS	May 4, 2015

(WQP) Water Quality Parameters Filter #4 Turbidity – Online Turbidimeter failure

What should I do? There is nothing you need to do. Filter #4 online turbidimeter failed and water plant personnel went to grab sampling every four hours as per regulation. Plants serving over 10,000 customers have five days to get replacement. We acquired the new instrumentation and installed on May 4, 2015, but was greater than five days. The filter #4 grab sampling during instrument failure indicated that there were no turbidity issues with the filter.

What is being done? Harnett County Regional Water Treatment Plant has purchased a spare Hach Filter Trac 660 Turbidimeter and put on shelf for future use in case of instrumentation failure and to forgo having to try and emergency ship the instrument by five days.

For more information about this violation, please contact the responsible person listed in the first paragraph of this report.